

**Replacement Abstract**

ABSTRACT OF THE DISCLOSURE

The invention relates to an IFF apparatus for ground applications, which comprises: (a) an encoder for forming an interrogating or response sequence of pulses, and conveying the same to a UWB transmitter; (b) an UWB transmitter for getting said interrogating or response sequence of pulses, forming a corresponding interrogating or response signal of a sequence of UWB pulses, and transmitting the same via a UWB transmitting antenna; (c) a plurality of UWB receiving antennas, disposed away one from the other, for receiving either an interrogating signal or a response signal sent by another IFF apparatus; (d) a decoder for getting from at least one of said UWB receiving antennas received signals, decoding the same, comparing the decoded signal with a bank of pre-stored signals, and determining whether a received signal is an interrogating or response signal; and (e) a processing unit for, upon receipt of a signal of response to an interrogation signal sent by the present IFF apparatus, calculating the location of the responding IFF apparatus by: (I) determining the range  $R$  by the time delays between the interrogating and response signals; (II) determining the direction vector to the responding IFF apparatus by evaluating the time differences between arrival of each response pulse to a plurality of receiving antennas; and (III) determining the identity of the responding IFF apparatus by checking the received sequence of UWB pulses, assuming that the sequence of each IFF apparatus is unique.